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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,136	12/23/2002	Wolfgang Heimberg	REN-13087	2520
7609	7590	03/31/2005		
RANKIN, HILL, PORTER & CLARK, LLP 925 EUCLID AVENUE, SUITE 700 CLEVELAND, OH 44115-1405			EXAMINER LEVKOVICH, NATALIA A	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,136

Applicant(s)

HEIMBERG ET AL.

Examiner

Natalia Levkovich

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 49-50 are rejected under 35 U.S.C. 112, second paragraph, as being unclear for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 49-50 recite that “the temperature difference between adjacent segments is less than a predetermined temperature difference (delta T)”. The criteria are not clear.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 19-22, 27 and 29-50 are rejected under 35 U.S.C. 102(b) as anticipated by

Gordon et al. (USP 5,601,141).

Gordon teaches a modular thermal cyclers “that carries a large batch of samples through one or more predetermined temperature profiles” and comprises a base and an array of modules mounted on a base. The modules are “substantially isolated from one another, thermally and functionally... The module has a temperature sensor adjacent the samples, an electrical resistance heating element, and a circulating fluid heat exchanger for step cooling...The modules are preferably formed in three layers--a sample plate, a heater plate, and a cooling plate adjacent to a manifold... The sample plate is preferably replacably secured at the upper surface of the module on the heating plate... The sample plate is adapted to receive a standard micro-titration plate, or other labware, in a close, heat-transmitting engagement [which may comprise recesses-Examiner]... The heater plate and cooling plate may be formed integrally...”

(Abstract, Col.1, line 5; Col.2,

lines 10-40).

With respect to claims 21-22, the base can be “changed easily to accommodate different sample holders adapted to different labware, or to hold samples directly” (Col.4, line 20).

With regards to claim 23-24, Gordon teaches that “the modules [‘segments’-Examiner] are spaced laterally, from one another [‘decoupled by means of air gaps’-Examiner] which in

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combination with forming the base of the insulator, provides a good degree of thermal isolation of each module” (Col.3, lines 40-45).

As to claim 27 and 29-30, Gordon refers to the use of Peltier elements for heating or cooling in thermo-cyclers as well known devices in the art.

In regards to claim 31-34, 41 and 45-47, Gordon teaches that “a controller... regulates the electrical current and cooling fluid flows to each module in response to a signal from a temperature sensing element associated with each module... The controller operates in response to the sensed temperature”. The cooling fluid can be water. (Col.2, lines 15-20; Col.4, line 45; Col.5, line 55). Since the central controller monitors each module individually and independently, the modules [‘segments’-Examiner] can be actuated in any order.

In respect to claims 35-38, Gordon specifies that “the modules ... are preferably arrayed in four rows of four modules each... The cycler ...is adapted to heat and cool sixteen standard micro-titration plates ... simultaneously, although the precise number of plates ... being processed is not limited to sixteen (Col.3, lines 30-45).

With regards to claim 40, Gordon teaches that “the heater plate and cooling plate may be formed integrally, but as described herein they are separate plates secured in a stack” mechanically (Col.2, line 30 .

As to claims 41-44, Gordon discloses “Because the plate P is a thin plastic sheet and sample plate 14a is highly conductive [that is, in fact, acts as a ‘temperature equalization element’-Examiner], there is good heat transfer between the samples held in the plate (or directly in a depression 14a’) and the plate 14a itself when the plates are in a close physical

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contact. In practice the sample temperature equilibrates with the plate 14a quickly, with the precise period ...”(Col.4, line 25; See Figures 1-3).

With respect to claims 49 and 50, these are limitations to the process of using the device, which are not attributed patentable weight in a claim to the apparatus. It would appear that the apparatus of Gordon et al. is capable of operating in this manner as the structure is identical to that claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (USP 5,601,141).

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Gordon does not disclose a thermal insulator, other than air, inserted between the segments.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a variety of thermal insulators having a coefficient of thermal conductivity higher or lower than the coefficient of air, in order to provide more flexible and precise control over temperature conditions in the apparatus of Gordon.


Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Levkovich whose telephone number is 571-272-2462.

The examiner can normally be reached on Mon-Fri, 8 a.m.-4p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill Warden
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